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Status and Progress of the Instream Flow Assessment Program

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Purpose

- System Operation Permit requires WMP
- Major elements of WMP
  - Document how water is managed and used
  - Accounting plan to track water management and use
  - **Environmental studies and adaptive management**
- **Provide data for next legislatively mandated instream flow assessment process**

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Environmental Studies

- Reservoir Fisheries Assessment
- Initial Stream Assessments
- Instream Flow Studies
- Evaluate instream flow criteria
- Recommendations to assess and refine instream flow criteria
- Adaptive Management

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Instream Flow Studies

- **Perform scientific and engineering studies to determine flow conditions necessary for supporting a sound ecological environment in the river basin.**
- **Consistent with Texas Instream Flow Program**
- **Two Phased, Multi-year Assessment**
  - **First Phase – intensive monitoring**
  - **Second Phase – long-term monitoring**

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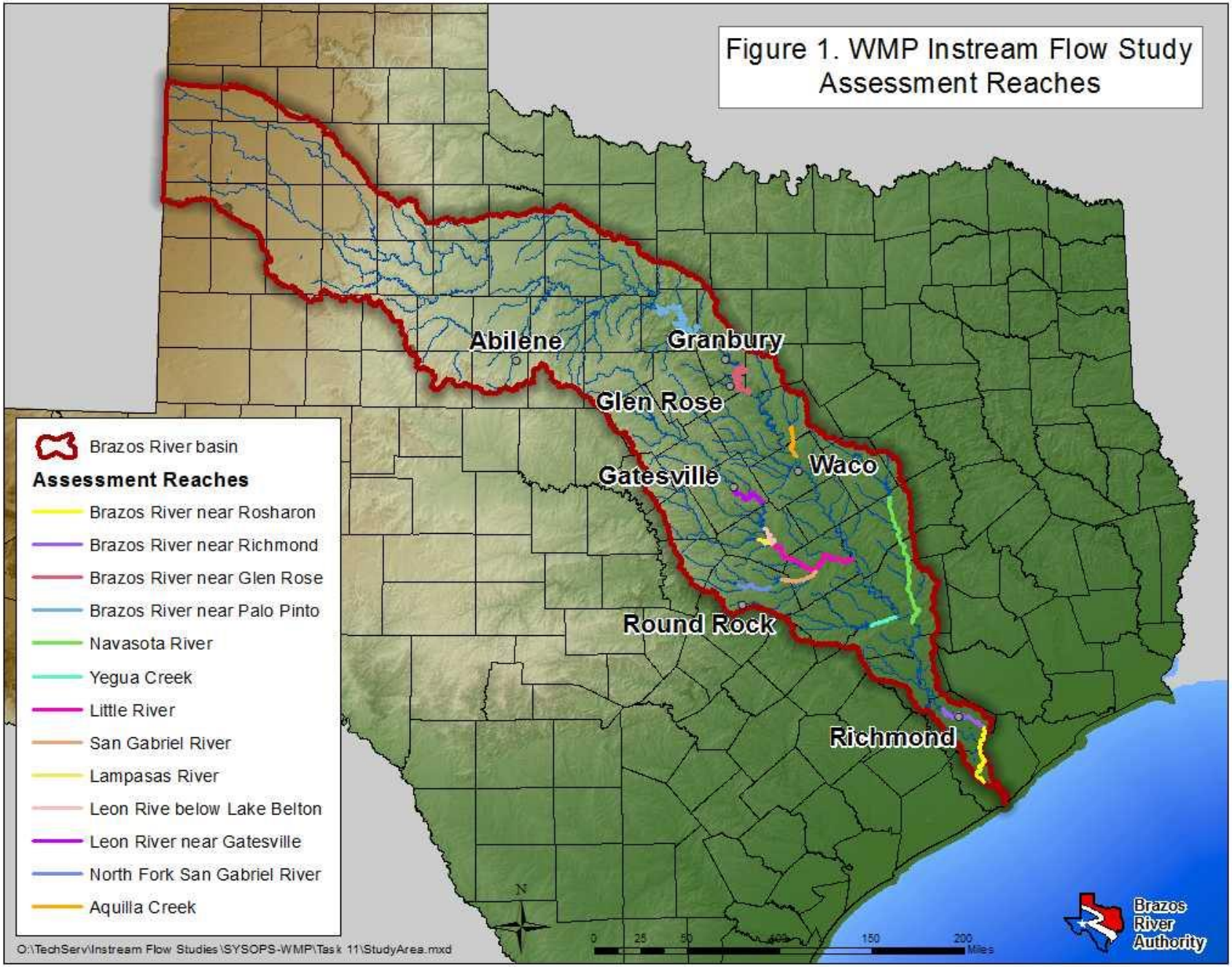

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Hydrologic Data Collection

- **Channel topography**
- **Water surface elevation and discharge**
- **Substrate Characterization**

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Instream Habitat Surveys

- **Mesohabitat Quantification (e.g. riffles, runs, pools)**
- **Microhabitat – identify and sample small habitat areas**
- **Identify flow requirements to maintain key habitat**

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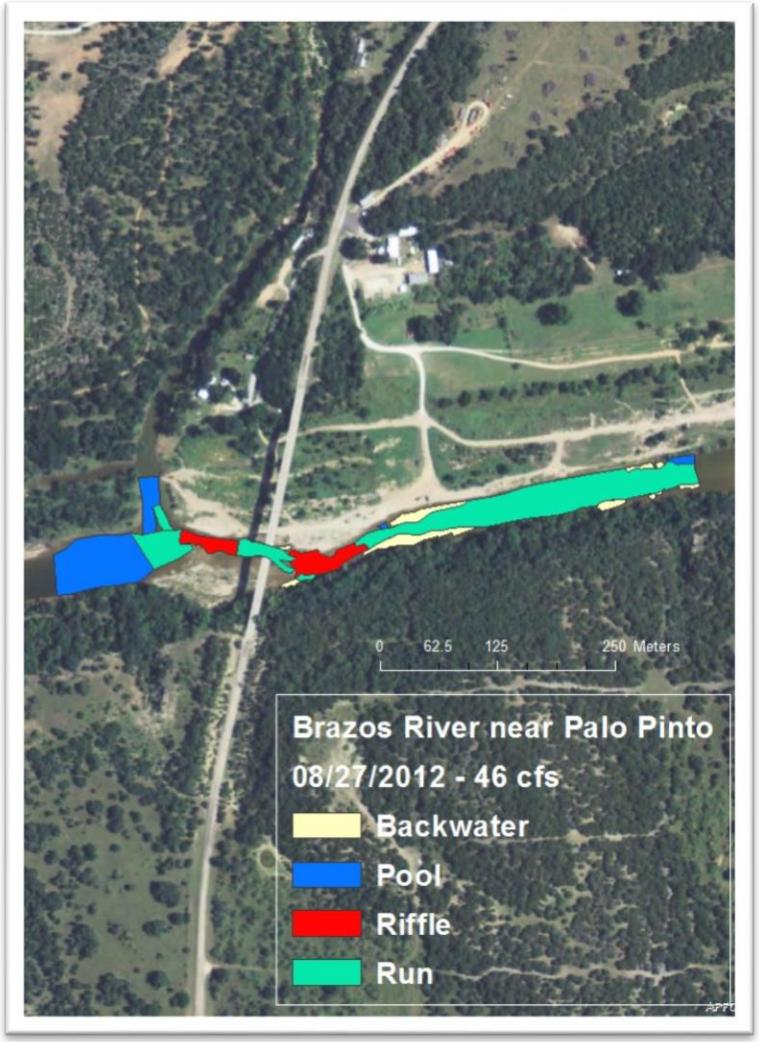
Habitat Comparison at Varying Flows



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Biology Data Collection

- **Fish Surveys**
- **Mussel Surveys**
- **Macrobenthic Surveys**
- **Microhabitat sampling**
- **Habitat suitability criteria**
- **Development of Guilds**

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Riparian Data Collection

- Connectivity
- Tree, Sapling and Seedling Composition and Relative Abundance
- Percent coverage by species
- Assess changes over time

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Site	Fish/Habitat Assessments										
	Sampling Date	Hydrological Target	Target Flow (cfs)	Actual Flow (cfs)	Entity	micro fish		meso fish			mussels
						# species	# habitats sampled	# species	IBI	ALU	# species
Brazos R. nr Palo Pinto (at FM 4)	15Feb12	medium base	61-75	64	BIO-WEST	24	26	---	---	---	0
	25Apr12	high base	100-120	106	BRA	14	18	17	48	high	0
	27Aug12	low base	39-40	46	BRA	16	13	29	51	exceptional	0
	12Mar13	subsistence	17	28	BRA	16	20	22	42	high	0
	15May13	subsistence	17	17	BRA	21	22	---	---	---	0
	13Aug13	> high base	> 120	168	BRA	17	20	---	---	---	0
	01Oct13	subsistence	17	24	BRA	22	20	---	---	---	0
	20May14	low base	39-40	50	BRA	---	---	22	51	exceptional	0
	25Sep14	low base	39-40	35	BRA	---	---	24	53	exceptional	0
	13Aug15	> high base	> 120	236	BRA	15	17	21	49	exceptional	0
	16Aug16	medium base	61-75	85	BRA	24	17	---	---	---	0
	14Sep17	medium base	61-75	75	BRA	---	---	26	55	exceptional	0
	11Oct17	> high base	> 120	158	BRA	---	---	27	51	exceptional	0
Brazos R. nr Glen Rose (11.1 km upstr. US 67)	16Apr13	low base	16	28	BRA	14	18	23	39	intermediate	0
	20Jun13	low base	16	27	BRA	17	18	---	---	---	0
	11Sep13	subsistence	16	17	BRA	17	20	19	43	high	0
	24Oct13	subsistence	16	25	BRA	15	20	---	---	---	0
	10Apr14	low base	16	28	BRA	---	---	25	43	high	0
	24Jul14	subsistence	16	14	BRA	---	---	23	43	high	0
	4Aug16	subsistence	16	24	BRA	---	---	27	45	high	0
		low base	37-47								
		medium base	70-92								
		high base	160-170								
Brazos R. nr Aquilla (at FM 2114)	14Feb12	low base	37	41	BIO-WEST	19	20	---	---	---	0
	22Jun12	medium base	100	126*	BRA	19	14	23	41	high	0
		subsistence	26								
		high base	160								
Brazos R. nr Richmond (at FM 723 N of Rosenberg)	30Apr13	subsistence	550	869	BIO-WEST	15	20	---	---	---	---
	21Aug13	subsistence	550	425	BIO-WEST	20	20	22	43	high	4
	15Apr14	subsistence	550	~700	BIO-WEST	18	20	16	40	high	---
	14Jul14	subsistence	550	801	BIO-WEST	18	20	17	45	high	1
	18-19Oct16				Aqua/Arroyo						
		low base	930-1,190								
	16-Nov-17	medium base	1,330-2,140	1320-1530	BRA/Arroyo						
		high base	2,190-3,980								
Brazos R. nr Rosharon (8.4 km upstr. FM 1462)	29Apr14	subsistence	430	492	BRA	---	---	20	41	high	0
	13Aug14	low base	430	770	BRA	---	---	20	39	high	0
	22Oct14	low base	930-1,250	1,148	BRA	15	17	---	---	---	0
	17Sep15	medium base	1,420-2,570	2,544	BRA	16	16	16	30	intermediate	0
		high base	2,630-4,740								
Aquilla Cr. (at FM 2114)	01May12	medium base	13	8	BRA	11	17	21	51	exceptional	0
	13Jun12	low base	1.0	4.6	BIO-WEST	17	11	---	---	---	0
	07Aug12	low base	1.0	1.1	BRA	14	17	16	51	exceptional	0
	27Mar13	low base	1.0	2.9	BRA	19	17	17	54	exceptional	0
	30May13	low base	1.0	4.8	BRA	16	13	---	---	---	0
	01Aug13	subsistence	0.1	0.25	BRA	17	18	---	---	---	0
	12Mar14	low base	1.0	1.7	BRA	---	---	19	51	exceptional	0
	04Sep14	low base	1.0	1.3	BRA	---	---	20	53	exceptional	0
	19Aug15	low base	1.0	5.6	BRA	---	---	22	51	exceptional	0
	25Jul16	high base	26	30.9	BRA	16	17	18	45	high	0
	12May17	high base	26	23.3	BRA	13	17	17	51	exceptional	0
	27Jul17	medium base	13	9.7	BRA	---	---	15	50	exceptional	0
Navasota R. nr Easterly	22Jul15	high base	16-29	24	BRA	19	20	29	56	exceptional	8
	11Feb16	> high base	> 29	101	BRA	18	16	15	48	high	---
	14Jul16	> high base	> 29	46	BRA	17	17	27	50	high	9

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The Effort Continues

- **Finish baseline data collection**
- **Begin data analysis.**
- **Recon 2 new sites**
  - **Leon River near Gatesville**
  - **Little River near Cameron**

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Questions?